CLAIM AMENDMENTS

1-25. (Canceled)

26. (New) A cooling system for an automotive drive unit including an internal combustion engine situated in a rear end of a vehicle and a transmission, comprising a covering panel part situated beneath the drive unit as part of a covering undercarriage of a vehicle superstructure, wherein a warmer air layer zone formed in a drive unit installation space on an engine side is layered above a cold air layer zone formed in the drive unit installation space by oncoming air supplied to a transmission case through air inlets in the covering panel part of the undercarriage, and wherein a temperature interface develops between the cold air and the warmer air layer zones, temporarily running approximately in an area of an upper border of the transmission case and through a lower partial area of an engine housing which is connected to the transmission case.

27. (New) The cooling system as claimed in Claim 26, wherein the air inlets are provided on a front side, as seen in a direction of travel, beneath the transmission case in the covering panel part of the undercarriage, and wherein air outlet openings are provided at the rear beneath the engine housing in the drive unit installation space.

28. (New) The cooling system as claimed in Claim 27, wherein the air inlets are provided in a front area beneath the transmission case over a large area in the covering panel part, and wherein the air outlet openings are provided in a rear area of the engine housing.

29. (New) The cooling system as claimed in Claim 26, wherein at least one additional air inlet opening, defining an oncoming flow channel, is provided behind the air inlets, as seen in a direction of travel, in the covering panel part of the undercarriage, and is directed at a differential of the transmission.

30. (New) The cooling system as claimed in Claim 26, and further comprising a scavenging air blower provided for the engine at the top in the drive unit installation space, and wherein said scavenging air blower has a compressed air inlet supply which acts upon the warmer air layer zone.

31. (New) The cooling system as claimed in Claim 27, wherein the cold air layer zone can be enlarged as a function of the driving speed of the vehicle and can increase in size upward due to air flowing into the drive unit installation space through the air inlets, displacing the hot air layer zone upward, and wherein an outward flow of hot air on the engine side through the air outlet openings can be achieved.

32. (New) A process of operating a cooling system for an automotive drive unit including an internal combustion engine situated in a rear end of a vehicle and a transmission, the system having a covering panel part situated beneath the drive unit as part of a covering undercarriage of a vehicle superstructure, comprising forming a warmer air layer zone in a drive unit installation space on an engine side, and forming a cold air layer zone in the drive unit installation space below the warmer air layer zone by oncoming air supplied to a transmission case through air inlets in the covering panel part of the undercarriage, and developing a temperature interface between the cold and warmer air layer zones, temporarily running approximately in an area of an upper border of the transmission case and through a lower partial area of an engine housing which is connected to the transmission case.

33. (New) The process as claimed in Claim 32, wherein the air inlets are provided on a front side, as seen in a direction of travel, beneath the transmission case in the covering panel part of the undercarriage, and wherein air outlet openings are provided at the rear beneath the engine housing in the drive unit installation space.

34. (New) The process as claimed in Claim 33, wherein the air inlets are provided in a front area beneath the transmission case over a large area in the covering panel part, and wherein the air outlet openings are provided in a rear area of the engine housing.

35. (New) The process as claimed in Claim 32, wherein at least one additional air inlet opening, defining an oncoming flow channel, is provided behind the air inlets, as seen in a direction of travel, in the covering panel part of the undercarriage, and is directed at a differential of the transmission.

36. (New) The process as claimed in Claim 32, wherein a scavenging air blower is provided for the engine at the top in the drive unit installation space, and wherein said scavenging air blower has a compressed air inlet supply which acts upon the warmer air layer zone.

37. (New) The process as claimed in Claim 33, wherein the cold air layer zone can be enlarged as a function of the driving speed of the vehicle and can increase in size upward due to air flowing into the drive unit installation space through the air inlets, displacing the hot air layer zone upward, and wherein an outward flow of hot air on the engine side through the air outlet openings can be achieved.

38. (New) A vehicle including a cooling system and an automotive drive unit situated in a rear end of the vehicle comprising:

a transmission with a transmission case, and

a covering panel part situated beneath the drive unit as part of a covering undercarriage of a vehicle superstructure,

wherein a warmer air layer zone formed in a drive unit installation space on an engine side is layered above a cold air layer zone formed in the drive unit installation space by oncoming air supplied to the transmission case through air inlets in the covering panel part of the undercarriage, and

wherein a temperature interface develops between the cold and warmer air layer zones, running approximately in an area of an upper border of the transmission case and through a lower partial area of a drive unit housing which is connected to the transmission case.

39. (New) The vehicle as claimed in Claim 38, wherein the air inlets are provided on a front side, as seen in a direction of travel, beneath the transmission case in the covering panel part of the undercarriage, and wherein air outlet openings are provided at the rear beneath the drive unit housing in the drive unit installation space.

40. (New) The vehicle as claimed in Claim 39, wherein the air inlets are provided in a front area beneath the transmission case over a large area in the covering panel part, and wherein the air outlet openings are provided in a rear area of the drive unit housing.

41. (New) The vehicle as claimed in Claim 38, wherein at least one additional air inlet opening, defining an oncoming flow channel, is provided

behind the air inlets, as seen in a direction of travel, in the covering panel part of the undercarriage, and is directed at a differential of the transmission.

42. (New) The vehicle as claimed in Claim 38, and further comprising a scavenging air blower provided for the drive unit at the top in the drive unit installation space, wherein said scavenging air blower has a compressed air inlet supply which acts upon the warmer air layer zone.

43. (New) The vehicle as claimed in Claim 39, wherein the cold air layer zone can be enlarged as a function of the driving speed of the vehicle and can increase in size upward due to air flowing into the drive unit installation space through the air inlets, displacing the hot air layer zone upward, and wherein an outward flow of hot air on the drive unit side through the air outlet openings can be achieved.

44. (New) A process of cooling an automotive drive system mounted in a rear of a vehicle by way of air inlet openings provided in a covering panel part of an undercarriage, comprising:

creating, through an influx of air, a cold air layer zone in a drive system installation space around a transmission and a bottom of an engine, and

displacing a hot air layer zone of the engine, which is located in the drive system installation space above the cold air layer zone, outward through air outlets.